

**POLYPROPYLENE, 40% CALCIUM CARBONATE FILLED
EXTRUSION GRADE- STAMPABLE****WSS-M4D365-B3****1. SCOPE**

The material defined by this specification is a 40% calcium carbonate filled thermoplastic extrusion grade compound based on polypropylene homopolymer.

2. APPLICATION

This specification was released originally for materials used in wiring troughs.

3. REQUIREMENTS

Material specification requirements are to be used for initial qualification of materials.

3.0 STANDARD REQUIREMENTS FOR PRODUCTION MATERIALS

Material suppliers and part producers must conform to the Company's Standard Requirements For Production Materials (WSS-M99P1111-A).

3.1.1 All requirements of this specification, identified by symbol (s), shall be met with data representing 3 sigma values.

3.4 MOLDING COMPOUND

3.4.1 Melt Flow Rate 0.5 - 1.5 g/10 min
(ISO 1133, 230 °C, 2.16 Kg)

3.4.2 Filler Content 37 - 43%
(ISO 3451-1, Method A,
(650 +/- 25 °C, CaCO₃))

3.5 MOLDED TEST SPECIMEN

3.5.1 Preparation of Test Specimens

Unless otherwise specified all tests shall be carried out on injection molded one-end gated test specimens.

The following dimensions are required:

- A. 150 minimum x 10 x 4.0 +/- 0.2 mm (Tensile Bar, ISO 3167)
B. 120 x 10 x 4.0 +/- 0.2 mm

Specimens with shorter dimensions shall be cut from the center of the specimen A and/or B. The specimens shall be prepared according to ISO 294. No annealing allowed.

Date	Action	Revisions
2012 11 19	Re-Activated	K. Mueller, NA
2009 11 19	N- STATUS	No replacement named J. Crist, NA
2001 01 12	Activated	M. Masserant, F. Serina



3.5.2	Density (ISO 1183, Method A)	1.21-1.29 g/cm ³
3.5.3	Tensile Strength at Yield, min (ISO R 527, 150 minimum x 10 x 4.0 +/- 0.2 mm specimen, test speed: 5 mm/minute)	19 MPa
3.5.4	Flexural Modulus, min (ISO 178, 80 x 10 x 4.0 +/- 0.2 mm specimen, 2 mm/min test speed, 64 mm support span)	2.0 GPa
3.5.5	Impact Strength, Izod, min (ISO 180/1A, 80 x 10 x 4.0 +/- 0.2 mm specimen, 10 specimens for each test)	
3.5.5.1	At 23 +/- 2 °C	5.0 kJ/m ²
3.5.5.2	At -40 +/- 1 °C	2.0 kJ/m ₂
The test specimen must be conditioned for minimum of 6 hours at the above specified temperature prior to impact test. Low temperature testing shall be done within the cold chamber.		
3.5.6	Heat Deflection Temperature, min (ISO 75, 120 x 10 x 4.0 +/- 0.2 mm specimen, edgewise, 0.32 +/- 0.01 mm deflection)	
3.5.6.1	At 1.80 MPa	50 °C
3.5.6.2	At 0.45 MPa	80 °C
3.5.7	Heat Aging Performance (ISO 188, 150 +/- 50 air changes/h, 1000 h at 140 +/- 2 °C. Unaged property values shall be determined at the time of the aged properties determination)	
3.5.7.1	Tensile Strength at Max Load, Change (Test Method per para 3.5.3)	+/- 15%
3.5.7.2	Impact Strength, Izod Change (Test Method per para 3.5.5.1, specimens to be notched before heat aging)	+/- 15%

3.6 FLAMMABILITY (ISO 3795/ SAE J369)

Burn Rate, max	100 mm/minute
----------------	---------------

The specimen size required for material approval is 355 x 100 x 1.5 +/- 0.1 mm with a smooth surface.